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IN
AFRICA

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FOREWORD

The transformation of African economies to make them more responsive to people's needs for food, clean water, education and other prerequisites for a productive life is a long, difficult process. While African countries and their international development partners may sometimes become discouraged by the many obstacles confronted, they can also take heart from the very real progress some countries have achieved in key areas. These gains are the result of strong will, backed by concrete action. Realizing that things simply cannot continue as before — and that messages of gloom and doom are counter-productive — African governments, in co-operation with donors, are proving that changes are not only necessary but possible.

UNDP's Regional Bureau for Africa supports these efforts through our 43 field offices, through liaison with the Organization of African Unity and the United Nations Economic Commission for Africa and through regional institutions. UNDP has a special relationship with the African countries, their people and their Governments. Our partnership is characterized by the optimism, determination and partnership of the African people themselves. We share with the international community a growing consensus that what really matters is development for African people, by African people, as well as the belief that development resources must address their most basic needs. We also feel that policy reforms, whatever shape they may take, must be relevant to specific country situations. They must reflect reality, no matter how unpleasant it may be.

But while constraints must be taken fully into account in adjustment and development programmes, so must the vast reservoir of African talent and energy. African men and women must design, implement and manage their own development. That is why, at the country level, UNDP gives priority to human resources development, to building national capacities for self-reliance and to poverty alleviation, and why we will continue to do so with all the vigour, vision, dedication and determination we possess. At the regional level, UNDP supports the achievement of Africa's collective goals, established by the Organization of African Unity, for regional economic integration.

This booklet is published in the year of the fortieth anniversary of UN technical co-operation. It is intended to give a sense of UNDP's wide-ranging commitment to Africa's development. I hope its clear evidence of African achievement will also serve to fortify all of us who are concerned that Africa should meet its future challenges.

Pierre-Claver Damiba
Assistant Administrator and
Regional Director for Africa

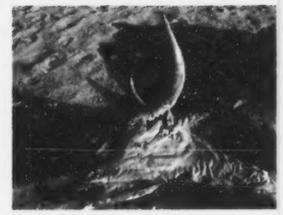
OVERVIEW

For the better part of two decades Africa's progress has been hostage to a series of natural and man-made calamities.

Drought, conflict, famine, desertification, falling productivity, debt, and the social trauma of economic restructuring have sapped the energy and resources of nations and rivetted attention to emergencies of the day.

Commitments to the welfare of present and future generations have held firm in national plans, and in the minds of African leaders. But population growth has outstripped new investments in agriculture, education, health, and other vital services. Few nations are likely to balance their social accounts soon.

Long range planning and development have been among the casualties of a prolonged emergency focus on Africa. At the same time, little has been said about the resourcefulness and adaptability which have enabled many millions of Africans to endure with so little, for so long. Next to nothing has been done to tap and share the age-old experience which has made it possible for people to exist in hostile environments. And too few have attempted to blend this vast reservoir of traditional knowledge with the advanced technologies of the present. In the crisis atmosphere of the early 1970s and mid 1980s, with its race to "save" nations with shiploads of grain, it was somehow forgotten that Africans had farmed, built, traded, and successfully developed their cultures in the face of similar hardships for millennia.



Drought has plagued Africa for millennia.

Recalling the age-old resilience of the African people gives reason for optimism about their future. With the support of the United Nations Development Programme (UNDP) and their other development partners, African nations are taking stock of their human and natural resources. They are blending new and traditional technologies into socially and economically viable models for renewed growth.

UNDP's Regional Bureau for Africa serves 44 nations south of the Sahara, inhabited by more than 440 million people. The capacity-building projects and programmes it supports are managed through a network of 43 country

Waiting for water in Mali.

Tanzanian fishermen.

offices. UNDP Resident Representatives also coordinate some of the largest emergency operations on the continent.

UNDP is convinced that the downward spiral of the 1970s and 1980s can be reversed only by looking beyond current crises and enabling nations to develop their human resources, infrastructure, institutions and management capacity. Its partnership with Africa is based on a set of long-term objectives outlined by African leaders in the Lagos Plan of Action and the Organization of African Unity's (OAU) Africa Priority Programme for Economic Recovery, which are reflected in the United Nations Programme of Action for African Economic Recovery and Development. These prescriptions recognize that long-term problems of critical poverty must be addressed, as well as Africa's short-term crises.

Although many of the countries have similar economic and social constraints, a wide range of geographic, climatic, ecological, cultural and political factors affect their approaches to development and their opportunities for recovery. The challenge is to choose approaches to sustainable, capacity-based development which are not only useful and acceptable to people needing help, but also manageable by them.

Economic and manpower constraints will prevent African nations from solving all of their problems simultaneously or unassisted. But experience does suggest that a judicious import of high and intermediate technologies, further enhancement of capacity, and a careful restructuring and integration of African economies can restore productivity and growth without compromising the traditions and know-how which have given Africans the strength to travel this far.

Through support to individual country efforts, as well as to a host of regional institutions and initiatives which are addressing common problems, UNDP is helping Africa to move ahead.

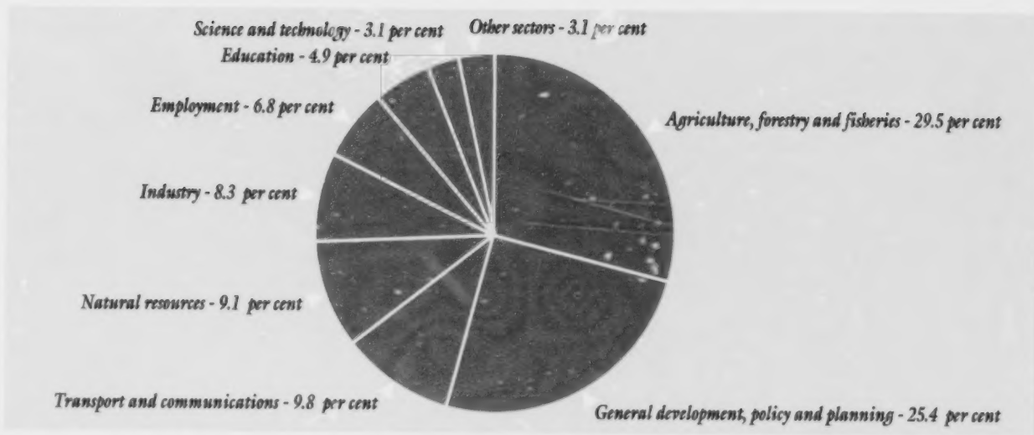
Togolese cotton farmer.

RESOURCES

Africa's share of UNDP's global resources is the largest of any region, and growing. The countries served by UNDP's Regional Bureau for Africa[1] were allocated 29 per cent of these resources for the 1972 - 1976 programming cycle and 33 per cent for 1977 - 1981. For the 1982 - 1986 cycle, Africa's share reached 36 per cent, and increased further, to 39 per cent for 1987 - 1991. In dollar terms, core resources currently available for Africa exceed $1,490 million, representing an increase of 45 per cent over the previous cycle and cost-sharing, trust funds and other allocations provide a grand total of over $2,141 million.

Spending priorities focus closely on the objectives of the Lagos Plan of Action, the OAU Africa Priority Programme for Economic Recovery and the United Nations Programme of Action for African Economic Recovery and Development. Of special importance is the allocation of over 25 per cent of all resources for general development, policy and planning. This represents an increase of nineteen per cent over the previous cycle, reflecting growing national concerns with economic management and policy reforms.

[1] *Programmes for the North African countries, Sudan, Somalia and Djibouti are administered by UNDP's Regional Bureau for Arab States and Europe.*


Science and technology - 3.1 per cent
Other sectors - 3.1 per cent
Education - 4.9 per cent
Employment - 6.8 per cent
Agriculture, forestry and fisheries - 29.5 per cent
Industry - 8.3 per cent
Natural resources - 9.1 per cent
Transport and communications - 9.8 per cent
General development, policy and planning - 25.4 per cent

The Multiplier Effect

UNDP supports 45 programmes and nearly 3,000 projects in sub-Saharan Africa. But its influence on development in the region goes beyond financial support from core resources. It has also helped to develop the concepts and structures for sustainable long-term development in several critical areas.

For the real measure of UNDP assistance in Africa, it is necessary to factor in a range of additional services, funds in trust, parallel financing, cost-sharing arrangements, follow-up downstream investments, and other multipliers which extend the impact of UNDP's initial "seed" money. The contributions of African governments must also be added to the equation. These are often larger than all external contributions combined.

UNDP's support for the development of Africa's human resources and institutions has encouraged other donors and investors to provide parallel financing for the Programme's technical co-operation activities.

Innovations such as Round Table Conferences for the Least Developed Countries have been particularly successful in attracting additional commitments from donor countries, and in helping to forge strategies in line with agreed development objectives. (See page 13.) Since 1987 the Round Table process has helped stimulate donor commitments totalling well over $1,500 million to least-developed countries in Africa.

Management Services
In recent years, UNDP has made its headquarters and field-based managerial and administrative system available to recipient countries for the implementation of projects funded by both multilateral and bilateral development agencies.

Under these arrangements, project support services are provided by the Office for Project Services (OPS) — with backup from the country office — to borrowers from the World Bank and the International Fund for Agricultural Development (IFAD), and to recipients of bilateral grants. The popularity of these management services provided by OPS is growing. At the end of 1989, OPS was responsible for 47 projects under management services agreements in Africa. Expenditures on these projects totalled over $44 million in 1989, representing an increase of 87 per cent relative to 1988.

Among the OPS-managed activities funded by bilateral grants in the region is a commodity procurement programme in Côte d'Ivoire, Guinea, Madagascar, Mauritania, Niger, Senegal, Togo and Zaire, for which Japan is providing over $100 million. Also under OPS management, Italy is providing $72.9 million to Chad and $19.0 million to Ethiopia for the rehabilitation and development of drought-affected regions, as well as $6.8 million to Guinea for the rehabilitation of appropriate infrastructure to enhance the country's capacity for development co-operation.

Road construction in Chad, managed by OPS.

Investment Follow-Up
Reported investment commitments related to UNDP-assisted projects in Africa amounted to $2,252 million in 1988, associated with 144 pre-investment and investment-oriented projects. The World Bank provided $970 million of these commitments, followed by African countries themselves ($823 million) and bilateral donors ($333 million).

National governments and bilateral aid organizations also provide extra support to given projects or sectors through special purpose trust funds administered by UNDP, or through parallel financing for sectoral activities identified by UNDP's groundwork.

HUMAN RESOURCES DEVELOPMENT

Lack of education and training, unemployment and chronic ill health all reduce a nation's capacity for growth. Human resources development, job creation and protection from the ravages of disease are therefore at the very heart of UNDP programming.

Literacy, Education and Training

The diversity of UNDP's assistance in developing human talents is illustrated by projects providing basic literacy and skills training, and developing capacities for management.

♦ In **Swaziland**, where a lack of education had kept much of the population from actively participating in development, the number of people enrolled in the National Adult Literacy Programme quintupled within six years. The programme is run by the Sebenta National Institute, a parastatal organization with voluntary membership. Most of Swaziland's more than 700,000 people live in small scattered homesteads. To reach them, UNDP and the UN Educational, Scientific and Cultural Organization (UNESCO) helped Sebenta set up a network of 500 classes, with about 10 students each. The programme enrolls more than 2,000 students a year in courses in SiSwati and basic English.

Although the country's overall national literacy rate is nearly 70 per cent, it is considerably lower in rural areas, particularly among women. Sebenta therefore prepared courses and reading materials especially for rural women, who make up 80 per cent of its students. Publication and free distribution of a rural daily newspaper kept the habit of reading alive once literacy had been attained.

Teaching methods and materials were also developed. There is now scarcely a Swazi community that has not hosted a Sebenta literacy course.

Rural literacy training.

♦ For **Guinea-Bissau,** assistance from UNDP and the International Labour Organisation (ILO) has enabled the government to meet a pressing need for middle level technicians in state and private enterprises.

At independence in 1974, the country had only 26,500 salaried employees in an active working population of 400,000. The government sought help in establishing the Technical Institute of Professional Training (ITFP), and between 1977 and 1981 more than 100 students received basic training in general mechanics, construction, and commerce. Another 280 students upgraded their skills in these areas.

A second phase of the project strengthened the Institute's management, as well as its capacity to supply skilled personnel needed by the country's economy. By 1986 another 970 students had graduated with technical and secretarial skills. ITFP now continues to produce a steady stream of skilled workers.

♦ With backing from UNDP over more than two decades, as well as assistance from the Economic Commission for Africa (ECA), the UN Department of Technical Co-operation for Development (UN/DTCD) and the ILO, the Eastern and Southern African Management Institute (ESAMI) has succeeded in training and retaining a cadre of highly qualified professionals from 19 African countries to manage public and private enterprises. Located in Arusha, **Tanzania**, ESAMI serves as a centre for training, research and consultancy services in such fields as human resources development, finance, communications and transportation, science and technology, natural resources, health and hospitals, municipal affairs, and industrial planning. It also undertakes consultancies on administrative and management problems associated with socio-economic and technological development, working with national, regional and international development institutions.

UNDP has provided a wide range of international expertise, consultancies, fellowships and equipment. A major programme to train female managers and entrepreneurs increased the participation of women in ESAMI training programmes from one per cent in 1977 to nearly 19 per cent in 1986.

As ESAMI fast approaches self-sufficiency, UNDP is assisting in establishing stable markets for its services.

Building Jobs and Assets

Special Public Works Programmes (SPWPs), supported by UNDP and ILO, are creating jobs in a number of African countries. While providing income for unemployed or underemployed men and women, such programmes bring roads and bridges, water supply systems and forest plantations and other productive assets to rural communities.

♦ **Cape Verde**, which in 1985 had only 32,500 permanent jobs for a working-age population of 165,000, has been one beneficiary. The Rural Development and Public Works Ministries have received assistance in setting up a management and information system to plan, find external funding for, and carry out SPWPs. Several programmes implemented between 1983 and 1987 in the areas of drainage control, soil conservation, reforestation and road construction provided more than 2,100 jobs, mainly in drought-stricken areas. Sixty per cent of the workers were women.

Laying water pipes, Cape Verde.

Lessening Threats to Health

With the World Health Organization (WHO), UNDP is fighting against a range of diseases which threaten Africa's development prospects. Among these are onchocerciasis (river blindness), schistosomiasis (bilharzia or snail fever), malaria, and acquired immune deficiency syndrome (AIDS).

♦ Nations throughout Africa have recognized AIDS as a major challenge to their development. The disease afflicts men and women in equal numbers in the region. The scale of human loss, and the cost of treatment, are being felt at all levels of society. The young and productive are often at greatest risk. UNICEF also reports a growing caseload of infants infected in the womb by mothers carrying the AIDS virus. No cure is in sight for the disease, which is transmitted mainly through sexual contact, the sharing of hypodermic needles, and unscreened blood supplies.

In March, 1988, UNDP and WHO formed an Alliance to Combat AIDS worldwide. The Alliance combines UNDP's development experience and extensive network of field offices with WHO's international leadership in public health. In Africa, it is helping governments assess the threat of AIDS, complete short term plans to combat the disease, and determine needs for external support. It has already helped to mobilize some $73 million from 16 donor countries for AIDS programmes in **Burundi, Cameroon, Central African Republic, Congo, Ethiopia, Kenya, Mozambique, Rwanda, Senegal, Tanzania, Uganda, Zaire, Zambia,** and **Zimbabwe.**

These programmes stress education and information strategies to stop the spread of infection. They also include funds to train medical personnel, improve facilities for screening and protecting blood supplies, ensure better sterilization practices throughout health care systems, prevent mother-to-child transmission, and improve diagnostic and treatment facilities for AIDS patients.

UNDP Resident Representatives are working with governments to build AIDS components into existing UNDP-supported projects, and to mobilize resources to support short and medium-term plans to combat AIDS. In **Zaire**, for example, UNDP has already added $1 million for the fight against AIDS to an existing $3 million primary health care programme.

♦ Maternal health is another grave concern in Africa. For every 100,000 babies born alive, 640 pregnancies result in the death of the mother. WHO identifies the main causes of maternal death as haemorrhaging, uterine rupture, and infection. Other risks include high blood pressure, malaria, tetanus and hepatitis. Women die from these problems during pregnancy or childbirth most frequently when their resistance is lowered by poor nutrition, overwork, and constant exposure to tropical diseases. Their vulnerability is also heightened by a lack of education about maternal hygiene, an absence of family planning services, and customs which favour repeated child-bearing.

In 1989, two years after the International Safe Motherhood Conference was held in Nairobi, Kenya, UNDP joined the World Bank and the UN Population Fund (UNFPA) in sponsoring a Safe Motherhood Conference, in Niamey, Niger. It was attended by representatives from 22 Francophone countries, donors, NGOs and other international organizations. UNDP is also working with a number of UN agencies and other organizations to increase maternal safety by improving women's diets and access to primary health care, reducing their workloads, giving them greater access to education, and raising their status in society.

Conquering River Blindness

In almost any village of West Africa's Volta River Basin, a child can be found leading an old man or woman with a stick. Invariably the old person is blind — a victim of river blindness. Until recently, many of the young guides could also expect to end their days in darkness.

River blindness is caused by a parasitic worm, transmitted by the female blackfly, which lays its eggs in fast-flowing rivers. The fly feeds on human blood, picking up the worm's microscopic larvae when she bites an infected person and transmitting them to others at her next meal. Once inside the human body the larvae mature into adults which reproduce themselves a million fold. Over a period of years they migrate through the bloodstream to the eyes, provoking lesions which impair vision and, in severe cases, cause blindness.

In the seven countries sharing the Volta River Basin — Benin, Burkina Faso, Côte d'Ivoire, Ghana, Mali, Niger, Togo — as many as one million people are believed to be afflicted by river blindness. An estimated 100,000 have been permanently blinded and an even larger number have been so debilitated by skin infections and acute discomfort that they can no longer work to support themselves and their families. The threat of the disease has caused the abandonment of hundreds of villages in the most fertile valleys in favour of the less productive blackfly-free plateaus.

At the request of the governments of the affected countries, the Onchocerciasis Control Programme was launched in 1974. Now costing $30 million a year, it has 19 donors and a steering committee comprised of UNDP, the World Bank, WHO, and the Food and Agriculture Organization of the UN (FAO). It also has been expanded to include Guinea, Guinea-Bissau, Senegal, and Sierra Leone.

The Programme's main strategy has been to interrupt the blackfly's breeding cycle through aerial spraying of rivers with larvicides, which are not harmful to the environment. This has controlled transmission of the disease over 90 per cent of the 764,000 square kilometre project area. Four million children under the age of five who would otherwise have been infected are free of the disease. With growing confidence, populations are returning to the more fertile wetlands.

Meanwhile, a new drug has been discovered to medicate people already infected. Called ivermectin, it was developed in the mid-1970s to treat livestock for parasites and ticks. Testing by WHO has shown that the drug can kill worms already in the human body. Although it does not cure river blindness, it greatly lowers the number of worms in the bloodstream, dramatically reducing both the damage they cause and possibilities for further transmission. A dose of only one or two tablets a year can be effective and ivermectin has few side effects.

Merck & Co., which manufactures the drug under the trade name Mectizan, has taken the unprecedented step of donating it to the affected countries free of charge.

Mothers and children. Many women do not survive childbirth.

For example, **Senegal** is developing a comprehensive safe motherhood strategy with UNDP and WHO support. A team of experts in epidemiology, obstetrics and gynaecology studied why the country has an estimated 1,800 maternal deaths each year. It identified four main measures which could halve these losses — provision of surgical care, adequate prenatal services including treatment of anaemia, malaria and hypertension, the avoidance of pregnancy among very young or old women of child-bearing age, and the use of qualified birth attendants. Based on these findings, a range of safe motherhood projects are being prepared for funding by donors.

♦ A large percentage of infectious diseases prevalent in Africa can be traced to unsafe water supplies and inadequate sanitation facilities. Among the many activities UNDP is supporting to enable African countries to provide their people with clean water and adequate sanitation, is an interregional programme active in **Burkina Faso, Cape Verde, Guinea-Bissau, Kenya, Lesotho, Mali, Niger, Senegal, Tanzania,** and **Zimbabwe**. It is developing replicable models for involving community women in sustainable, and environmentally sound drinking water supply and sanitation projects.

The programme is called Promotion of the Role of Women in Water and Environmental Sanitation Services (PROWWESS). In **Cape Verde**, PROWWESS has been teaching hygiene, safe water use, recycling and conservation to small groups of women in three slum areas of the capital, Praia. When they complete the courses the women are qualified trainers, able to pass along their knowledge to their neighbours.

ROUND TABLES

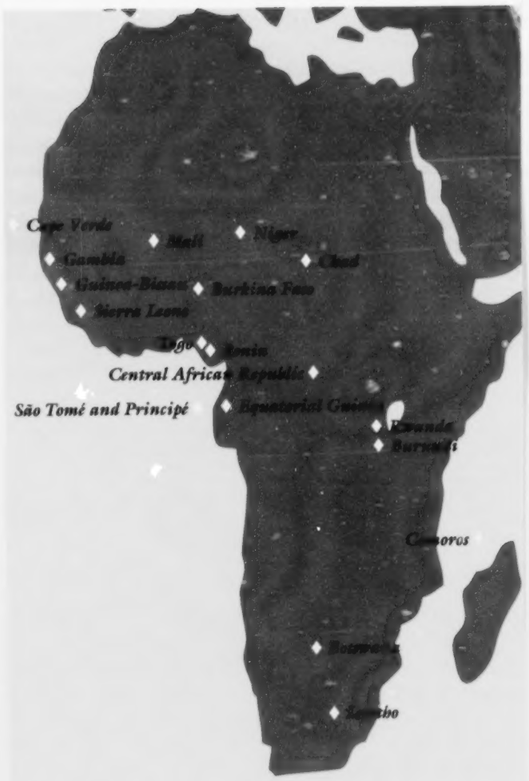
For more than a decade, UNDP has promoted development co-operation between individual African governments and their principal aid partners through the Round Table process. This process has been conceived as a cycle of two to five years, starting with a conference in Geneva, and continuing through review meetings and sectoral consultations. While recognizing the sovereignty of governments and their right to determine their own aid policies, it provides a framework within which all parties can work towards an agreed development strategy and more cohesive action programmes.

Round Table Conferences in Geneva are usually co-chaired by upper echelon officials from the government and UNDP. They attract high-level representatives from the country concerned, major donor governments, and multilateral financial institutions such as the African Development Bank, the World Bank and the International Monetary Fund. Participants examine the country's current economic situation, as well as past and present development constraints and efforts to resolve them, based on detailed macro-economic studies and carefully prepared Public Investment Programmes. The meetings invariably result in commitments for further assistance.

Five Round Tables in 1988 brought promises of additional assistance totalling $820 million a year over three years. The pledges were for Burundi ($270 million), Equatorial Guinea ($68 million), Guinea-Bissau ($125 million), Lesotho ($157 million), and Togo ($200 million). A conference in 1989 brought pledges of $179 million a year for three years for São Tomé and Principé.

Since 1987, a total of 18 sub-Saharan countries have sought UNDP's assistance for Round Tables. Eight Round Table Conferences, two In-country Review Meetings and some 30 in-country sectoral and other consultations have taken place. In addition to raising funds for development, the meetings spur ongoing dialogue between governments and their aid partners. They have also become useful instruments for monitoring the progress of the Substantial New Programme of Action for Least Developed Countries (LDCs), and the UN Programme of Action for African Economic Recovery and Development. Sectoral follow-up meetings, which reinforce donor co-ordination in specific areas, have further extended the value of Round Tables.

UNDP has been a regular participant in the Consultative Group meetings for other countries in Africa organized under World Bank leadership. For these meetings, UNDP has been assigned the role of preparing a paper on technical co-operation in the countries, which shows the links between such technical co-operation and the capital assistance under discussion.



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MANAGING TECHNICAL CO-OPERATION

In the last decade the volume of technical co-operation reaching sub-Saharan countries has mushroomed. According to the Organization for Economic Co-operation and Development, in 1987, Development Assistance Committee donors spent $7,400 million on technical co-operation grants worldwide. Forty-three countries in Africa received $3,700 million of this amount. In most African countries technical co-operation accounts for one fourth to one third of all development aid. In several, the total volume of this co-operation is estimated at over $100 million a year. If these resources are managed effectively, major economic advances can be achieved and funds and skills can be channelled where they are most needed.

The total number of technical co-operation personnel present on the African continent has been estimated at 70,000. UNDP-sponsored surveys show that hundreds or even thousands of such personnel are working in any given country. At times, there are more technical assistance personnel than trained nationals working in certain government ministries.

While the volume of technical co-operation has grown, its effectiveness in building national institutional capacity and creating sustainable forms of development has not necessarily followed suit. Technical co-operation programmes do not always enhance self reliance. In fact, they often serve as a substitute for it. As the need for strong institutions to manage economies in crisis becomes increasingly apparent, donors and host countries are convinced that the time has come to make technical co-operation more effective.

Since 1986, UNDP's Regional Bureau for Africa has undertaken National Technical Co-operation Assessments and Programmes (NaTCAPs). These ambitious exercises equip governments to effectively manage technical co-operation programmes in which financial resources and personnel received from a multitude of donors are targeted to the priorities they themselves have identified. African governments and donors have welcomed UNDP's initiative in introducing the NaTCAP concept. Both acknowledge that technical co-operation should be submitted to the rigorous policy analysis demanded of other forms of external assistance, and that it needs to be more coherently integrated into the macro-economic management frameworks of recipient countries. They also agree that recipient governments need to clearly define priorities when requesting donor co-operation.

NaTCAPs were launched in ten countries on a pilot basis in 1986-1988 — **Benin, Burundi, Central African Republic, Ghana, Guinea, Guinea-Bissau, Mozambique, Swaziland, Tanzania,** and **Zambia.**

After a review of this experience a methodology was refined and the process begun in nine other countries in 1989. A dozen more countries asked UNDP to assist them in implementing NaTCAPs in 1990.

The exercises are led by governments and involve the co-operation of all donors. UNDP's role is catalytic and supportive. Typically, a national committee, task force or working group, headed by a senior government official, is in charge of NaTCAP implementation.

Donor consensus is sought for the introduction of improvements in technical co-operation programmes. Special seminars may be held to enable government and donor officials to discuss technical co-operation issues, or countries may include donor representatives in national committees. In **Malawi**, where several working groups are reviewing technical co-operation, the task force on agriculture includes officials from the UNDP, FAO, the World Bank and the US Agency for International Development, as well as staff from the Ministries of Agriculture and Education. The group's findings will form the basis for preparing Malawi's policy document on technical co-operation, which will become a part of its long-term development plan.

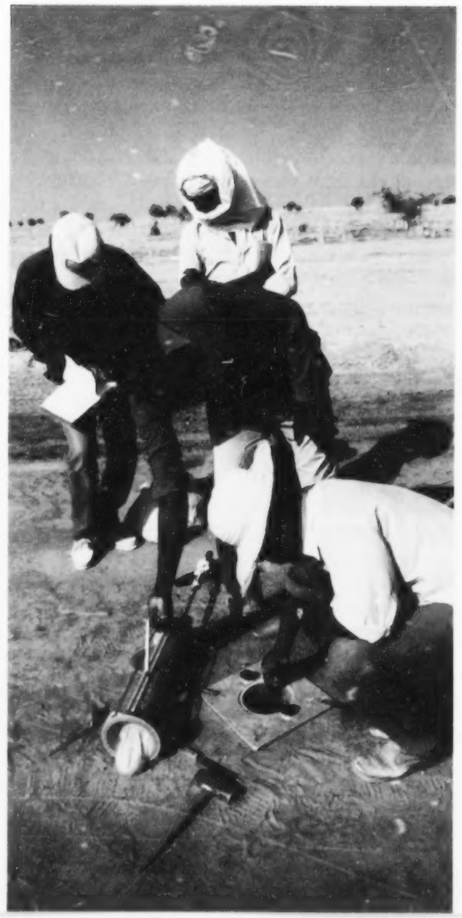
The first step in the NaTCAP process is the government's establishment of a reliable *data base* on technical co-operation. This is a prerequisite for planning and managing the effective use of resources. Most governments do not maintain easily accessible information on financial flows and the use of donor contributions for training, personnel and equipment. They also do not know how many technical co-operation personnel are working in the country, where they are, and the cost of programmes to the national budget. Such was the case in **Burundi,** where an initial NaTCAP survey prompted the government to install a computerized information system in the Ministry of Planning. Now, for the first time, charges to the national budget are being recorded for technical co-operation programmes financed by both external and national resources.

The second step in the NaTCAP process is the government's development of a *policy framework for technical co-operation*. This provides guidance to ministries and agencies using technical co-operation resources as well as to the donors providing them. In **Guinea**, such a framework was drawn up by an inter-ministerial committee, headed by the Ministry of Planning, and discussed within the government and with donors. Policies set forth, such as the need to emphasize institution building and training, have influenced technical co-operation planning and programming and established a basis for government negotiations with UNDP and other donors.

Finally, a government carrying out a NaTCAP prepares an overall *technical co-operation programme*, based on national priorities. This ensures that technical co-operation will be "demand driven," with projects identified and formulated by the government rather than by donors, as has all too often been the case in the past. In Guinea, the outline developed for such a programme is very detailed. It includes both total allocations of external aid budgets and total numbers of external personnel considered appropriate for technical co-operation in view of the country's requirements and absorptive capacity. It also gives needs for training, personnel and equipment for each Ministry, along with medium-term projections for the future.

The ultimate objective of all NaTCAPs is to leave African governments with enhanced capacities to manage technical co-operation programmes. Once equipped with the basic management tools however, governments need to incorporate these programmes within their overall external aid co-ordination frameworks, as well as within national planning and budgeting processes. This is happening in **Swaziland**, where technical co-operation projects are fully integrated into the National Plan and the Public Investment Programme. The government is making further improvements by strengthening its data base, making the policy framework more explicit and incorporating externally funded projects into the budget so that the impact on recurrent costs is more visible.

An estimated 70,000 technical co-operation personnel work in Africa.



STRUCTURAL ADJUSTMENT

Some 30 African countries have now undertaken a variety of macro-economic and sectoral adjustment programmes, mostly in collaboration with the World Bank and the International Monetary Fund (IMF). However, many African governments feel that these programmes are too drastic, strain their administrative capacity, fail to reflect long-term development goals, neglect regional planning and have a negative impact on income distribution and capacity to deliver basic social services. To make matters worse, in many countries national capital outflows are increasing while private capital inflows have dried up and incentives to private investment have not yet yielded the expected returns from either foreign or local sources.

African governments have not disputed the need for economic restructuring or special programmes in support of policy reforms. But many African leaders believe the approach originally adopted would only reinforce their traditional dependency on raw materials exports rather than move them in promising new directions. They feel an urgency to "internalize" the reform process. Debate has therefore focused on the improvement of ongoing programmes and on adjustment programmes for the future, as well as on possible alternative strategies to advance Africa's development. African leaders want a more gradual approach to economic restructuring and a strategy more compatible with existing financial, political, social and institutional constraints. They want to explore improved as well as alternative scenarios which will give them an opportunity to build national consensus on measures to be taken. Determined that the restructuring process embrace the views of national experts, macro-economic task forces, and agencies ultimately responsible for implementing new policies, they want special training programmes that will enable officials from their Ministries, consulting firms, and regional training institutes to be intimately involved in the decision making.

Although UNDP does not participate directly in the actual negotiation of structural adjustment programmes, African governments have increasingly requested its support in strengthening their capacities to negotiate these programmes and mitigate the programmes' negative impacts on the poorest and most vulnerable population groups. UNDP has long been involved in Africa's efforts to mobilize resources. A number of UNDP-supported technical co-operation projects are also enabling governments to improve management in the public and parastatal sector, prepare multi-year public investment programmes, identify major sectoral policy and institutional issues, develop national institutions, and train experts.

The three-year, $6 million, multi-country Structural Adjustment Advisory Teams for Africa (SAATA) project provides training and high-level expertise to enable nations to prepare their own programmes of economic restructuring and adjustment and develop a stronger position for their negotiations with the IMF and the World Bank. African governments especially appreciate this support because, as a neutral party which does not provide direct financial assistance for structural adjustment, UNDP is impartial in its advice. Experts from the teams visit African countries upon request, hold extensive discussions with officials and national task forces and provide them with advice on structural adjustment issues irrespective of whether they intend to negotiate with the World Bank and the IMF or organize their own such programmes.

SAATA teams began working successfully in **Burkina Faso, Central African Republic** and the **Comoros** in 1989.

Improving Planning and Management

While most African countries have an official institution responsible for planning, almost none have economies presently managed on the basis of a long-term development plan. At a UNDP-sponsored meeting in Niger, in late 1986, African Ministers of Planning acknowledged that longer-term planning on the continent had fallen victim to a prolonged state of emergency in which short-term crisis management took precedence. Even where they existed, they agreed, longer-term plans often had little to do with reality and the impact on those they were intended to serve was minimal.

Traditional methods of planning have been judged unsuitable for Africa for a variety of reasons. One of these is the nature of African economies, which are driven by agriculture, climatic factors, and an informal sector which, by definition, is not organized. Another is the dependency of many nations on foreign aid flows, which cannot be timed or controlled by national officials. There is also the inadequacy of basic statistics and national accounting systems.

UNDP has long been in the forefront of efforts to reactivate development planning in Africa. For example, it budgeted $395 million for planning activities in various sectors in Africa between 1981 and 1986. Working with UN/DTCD, UNDP has recommended certain measures through which African countries and their aid partners might reconcile emergency management with long-term approaches to economic management and poverty alleviation. Cluster meetings held in **Botswana, Uganda, Togo** and **Burundi** in late 1988 gave African Ministers of Planning an opportunity to discuss sub-regional concerns with senior UNDP officials. Among other things, the Ministers recommended that UNDP broaden its support in the areas of policy reform, structural adjustment, technical assistance and training, while stressing the importance which they attach to the neutrality of UNDP. UNDP was also asked to establish a forum through which African countries could share their structural adjustment experiences, and to help governments develop policies to rationalize their public sectors and promote their private and informal sectors.

Poor public administration and management are often accused of having contributed to Africa's financial crisis, adversely affecting aid flows.

Based on reviews of selected African countries, a working group of senior officials from UN/DTCD, ECA and UNDP recommended a Special Action Programme for Administration and Management (SAPAM). Its purpose is to intensify UN technical co-operation activities in the fields of administration and management, help mobilize resources for additional activities in these areas, and focus attention on priorities. By mid 1989, with funding from the Government of the Netherlands, SAPAM missions had identified projects for 27 countries and secured follow-up funding for 13, including **Botswana, Burkina Faso, Guinea-Bissau, Niger, Swaziland,** and **Tanzania.**

In 1988, UNDP's Governing Council responded to the need for better management in the developing world by establishing a global Management Development Programme (MDP). It emphasizes the needs of the public and parastatal sector, the capacity of governments to formulate and implement long-term reform policies, and training and research in public administration and business management. Since priority is given to the needs of the least-developed countries, sub-Saharan Africa is likely to receive nearly half of the MDP's 1988-1991 $60 million budget.

Crops like tomatoes are lessening Côte d'Ivoire's dependence on cocoa.

♦ In 1979, UNDP and UN/DTCD embarked on a planning and management project to help **Zaire** develop a permanent process of economic forecasting and decision-making. The country had been trying to consolidate a national planning system for almost a decade but had not succeeded, largely because there were insufficient trained professionals to sustain the operation.

Immediate tasks were to support the preparation of Zaire's first Five-Year Plan (1986-1990), and to prepare nationals to implement and monitor it. The project enabled Zaire to complete the plan. It also enabled the development of a forecasting bulletin, contributed to the drafting of the investment budget and permitted monitoring of an IMF and World Bank adjustment programme. Over seven years nearly 800 national professionals developed skills in planning, management, statistics, forecasting and accounting. The Department of Planning was reorganized. A follow-up project is enabling the government to strengthen the national planning system at central and local levels, mainly through monitoring of the Five-Year Plan and the institution of decentralized regional planning.

♦ Land-locked **Niger**, a country of 7.2 million people in the heart of the West African Sahel, has long needed to improve its capacity to forecast and analyse economic developments.

Over several years UNDP-supported projects had established a foundation for short-term, macro-economic forecasting. But by 1986 the government was ready to prepare a mid-term development plan and create a permanent capacity to make longer-term projections. It also needed to compile economic information on the country and its main economic partners, train staff in the Ministry of Planning, create an economic documentation centre, and organize a Round Table Conference.

A project supported by UNDP and UN/DTCD developed the basic technical documents for Niger's Round Table and provided follow-up support. It also prepared a mid-term forecasting model, improved macro-economic forecasting, and trained staff in the Ministry of Planning. A follow-up project is studying the impact of structural reform programmes, intensifying sectoral studies, and strengthening training for nationals.

Diversifying the Economy

African nations which came to independence with their economies tied to the export of raw materials soon learned that political independence was one thing but economic independence quite another. They found that no matter how productive their mines or valuable their crops, their growth was buffeted by many forces beyond their control, including prices set abroad by multinational traders, the introduction of synthetic substitutes and devastating changes in the weather.

♦ While **Côte d'Ivoire**, the world's largest grower of cocoa, has enjoyed peaks of prosperity, it has suffered through deep economic troughs in recent times. The world market price for cocoa plummeted from $2.60 a kilo in 1980 to $1.30 in 1989, taking per capita income down with it.

By 1986 the latter had already fallen to $730, from a peak of $1,200 in 1981. This dramatic reversal has galvanized the government's determination to diversify the national economic base. UNDP and the International Trade Centre (ITC) have enabled the country to promote foreign trade and develop commercial information and documentation services. They have also enabled analysis of the export potential of several hundred enterprises in industry, food and agriculture, forestry, and textiles. A study on financing and credits for exports has been completed and recommendations were made for the reorganization of the International Commerce Centre (CCIA) in Abidjan.

UNDP and ITC have also helped to train national professionals in international commerce, and to set up two computerized data banks for a national commercial information system. The first data bank lists 357 national enterprises as potential exporters. The second registers 150 foreign enterprises as potential buyers for Ivoirian products.

♦ **Lesotho**, a land-locked country with 1.5 million people, is entirely surrounded by South Africa and has been largely dependent upon its neighbour for survival. Half the male labour force is employed in South Africa and remittances sent home almost equal Lesotho's Gross National Product. In 1986 more than 95 per cent of the country's imports came from South Africa and 89.5 per cent of its exports ended up there.

Before the Letseng-la-Terai mine closed in 1981, diamonds were Lesotho's single most valuable export. Subsequently, although the country made remarkable progress in developing new exports such as wool and mohair, clothing, footwear, pharmaceuticals and food products, the trade balance remained unfavourable. In 1987 imports were valued at over $511 million, while export earnings reached only $61.34 million.

Lesotho has received assistance from UNDP, ITC and the Government of Norway to strengthen national institutions for trade promotion, diversify exports and upgrade national government and private sector skills in trade promotion and marketing. An Association of Lesotho Exporters was established to rally private sector support for trade promotion. A private sector consortium - the Lesotho Electronics Development Corporation - started to negotiate joint ventures with European companies. UNDP and ITC also helped set up Africa's first Export Financing Scheme, within the Central Bank of Lesotho, under which small-scale exporters — the majority of exporters in Lesotho — can obtain working capital or credit for export production and sales on concessionary terms. As a result, the number of export enterprises grew from 29 in 1983 to 56 by 1987. These firms, which employ over 6,500 people, have seen their sales grow by an average 22 per cent annually.

Addressing the Social Dimensions

Structural adjustment has cost Africa's poorest people dearly. With heavy debt burdens and new financial flows tied to restructuring programmes, most sub-Saharan African governments have sought to restore their economies by shedding costly public enterprises, reducing public payrolls, devaluing currencies, and slashing public expenditure on basic services such as education and health.

Produce is canned and exported from Lesotho.

These dramatic efforts to restore nations to fiscal health in the long run have had serious and immediate consequences for those living on the edge of survival. The crude facts are that two thirds of Africa's rural population, and one third of urban dwellers, are living below the absolute poverty line. In 1980 it was estimated that 150 million Africans - or 44 per cent of the active population - were malnourished. More recent research by UNICEF indicates that Africa is the only region on earth where the death toll among young children is rising.

Primary school enrolments between 1980 and 1985 fell in 17 countries and half of all African nations have stopped making new investments in education infrastructure. It is estimated that the region is currently spending only 60 cents per capita on essential textbooks, paper and pencils, compared with $100 per capita in the industrialized world.

Many health workers, frustrated by low wages and shortages of medical supplies, have abandoned their posts and sought other work. National immunization programmes are in jeopardy and many communities have no emergency health facilities close at hand.

Increasingly concerned with these transitional social costs of structural adjustment, UNDP, in partnership with the African Development Bank, the World Bank, The Economic Commission for Europe and other agencies, has embarked upon a regional project which is helping governments track economic and social trends among populations at special risk and build poverty alleviation programmes to accompany the adjustment process.

Outdoor classroom. Structural adjustment has cut investments in education.

Earlier efforts to establish statistically reliable cause and effect relationships between structural adjustment programmes and declining social services in sub-Saharan Africa were handicapped by the limited data available on income distribution and human welfare over significant periods of time. It has also been difficult to pinpoint cause and effect since earlier pre-adjustment policies which worked against growth might also have accounted for fluctuating living standards among different socio-economic groups.

Through the use of national household survey and accounting procedures sensitive to changes in living standards, the current project offers a unique opportunity to measure the direct social consequences of adjustment policies in individual countries, and to compare them with policy experiences elsewhere in the region. The first surveys, in a core group of 10 countries, are examining the relationship between labour and poverty, the impact of education and health status on household income, the demand for social services, the structure of welfare, the promotion of women in economic development, and nutrition and food policy.

Soon the surveys will be extended to additional sub-Saharan countries. The initial budget is $10 million, with total costs conservatively estimated at $44.5 million. This project is operating within a special regional facility to finance and develop common statistical and analytical methodologies and support follow-up measures.

PROMOTING THE PRIVATE SECTOR

Declining productivity and investment in Africa have spurred many countries to re-examine their development strategies and growth prospects. Faced with under-utilized resources and industrial plants, and poorly performing state enterprises, governments have begun turning to the private sector as a means of reviving their economies.

UNDP supports a wide spectrum of projects which address the critical needs of the private sector in Africa. The programme is helping to turn sound ideas for private enterprises into well formulated and bankable projects, and assists in finding financial backing. It is strengthening institutions responsible for management training, and has helped to foster policies and create infrastructure to make African economies more appealing to foreign investors.

In 1988 and 1989, UNDP and African governments sponsored nearly 100 country meetings and five sub-regional seminars addressing the many issues related to private sector development. These meetings provided an opportunity for public and private sector representatives to exchange views and outline the kind of assistance that is needed to promote private sector growth, and to build an enabling environment for privatization, institution building, and support activities.

Training Enterpreneurs

In less than three years a young man in Malawi rose from the ranks of the unemployed to establish his own radio and electrical repair shop and generate an income 45 times the national average. The young entrepreneur has no debts, and during a recent visit to the Malawian Entrepreneurs Development Institute (MEDI), where he earned his diploma, he half jokingly offered his former instructors a job.

This is not an isolated example. All of MEDI's first 200 graduates are still in business, and less than two per cent are behind in paying their loans. The first woman graduate recently won a US$12,000 electrical contract to rewire a maternity health clinic.

The Institute is filling an acute need for technical and managerial skills Malawi has felt since independence in 1964, when mechanical and civil engineering positions were left vacant by departing expatriates. To fill the gap, the government opened a Polytechnic College at the University of Malawi and established five technical schools for craft and vocational training. But courses at these institutions were tailored almost entirely to the needs of the urban industrial sector. No training was offered in entrepreneurial and managerial skills, and many young people left school with neither trades nor a concept of self employment. As a result, the 75 per cent of Malawi's people living in rural areas could find few craftsmen to perform technical jobs.

UNDP and ILO responded by helping the government set up a Vocational Training Institute in 1978 and MEDI in 1985. The latter provides potential entrepreneurs with four to ten months of training in skills for which there is a high demand — such as automobile, radio and watch repair, electrical wiring, building construction and welding. In addition to technical and business training, MEDI students acquire practical experience. Some earn as much as $800 a month plying their trades in areas surrounding the Institute.

Once a student has developed sufficient technical and marketing skills, MEDI provides business cards, a pocket calculator, and a loan of up to $2,200 through the UN Capital Development Fund and sends the new entrepreneur out to set up a business. Instructors visit and advise former students regularly during the first six months on their own.

Pottery producers, Togo.

Since the private sector's ability to function is heavily dependent upon the public sector's performance in granting and issuing licenses, work permits, visas, foreign exchange remittances and other authorizations, the need to improve the efficiency of the public sector was one of the most critical issues discussed. As public services take on more and more complicated responsibilities, economic growth hinges on the capacity of public enterprises to plan, formulate appropriate policies, and provide efficient services. It was noted that governments had an obligation to sustain and improve those vital supporting public services which could never become profit making operations.

The informal sector, which plays a large and expanding role in African economies, and is a major source of jobs for women, was high on the agenda of most meetings. The needs of micro and small-scale enterprises have tended to be ignored in the region. Instead, the debt burden has been worsened by a past bias toward capital-intensive projects demanding external credit on unfavourable terms. Seminar participants urged financial institutions to find creative ways to finance small businesses. Governments were urged to support efforts to bring local creativity and initiative into the economic mainstream, and to create an environment really conducive to the attraction of private investors.

Support for Entrepreneurs

♦ In **Zimbabwe**, where small-scale industrialization is in its infancy, the government has asked UNDP and the UN Industrial Development Organization (UNIDO) to assist the Small Enterprise Development Corporation (SEDCO). SEDCO establishes co-operatives and small commercial enterprises in district growth centres. By the end of 1988 it had trained 130 potential entrepreneurs, most of whom were in the process of establishing industrial units in all of Zimbabwe's provinces.

SEDCO has also gathered information on sources of raw materials, technical assistance, and appropriate technologies for each province. Guidelines for the identification of industrial opportunities have been completed. A special mission is planned to assess further opportunities to develop small industries, train entrepreneurs, and develop supporting institutions.

Entrepreneurship and initiative are not new to Africa, but many people with good ideas lack the knowledge and support to prepare the documentation necessary to obtain funding. Financial institutions with the resources to assist often have insufficient time and capacity to help prospective clients make their projects 'ankable.

In 1986, UNDP, the International Finance Corporation (IFC), and the African Development Bank launched the **Africa Project Development Facility** (APDF) to help small and medium-size enterprises bridge this gap. Teams of advisors, based in Nairobi and Abidjan, guide qualified entrepreneurs over the various obstacles and help them find financing in the $500,000 to $5 million range. The Facility presently operates with a four-year budget of $18 million, provided by the three sponsors and 12 donor countries.

♦ **Technology Business Incubators** nurture new businesses by providing small operators with access to office facilities, communication services, technical assistance, and institutions which would normally be beyond reach. They also give fledgling companies the technical and economic support needed to turn ideas into marketable products. Incubators have substantially reduced the failure rate of new businesses in the United States and Europe. A number of African countries have shown interest in establishing them with assistance from the UN Fund for Science and Technology for Development (UNFSTD).

The lack of proper management causes many African enterprises to run inefficiently. According to a UNIDO survey, few African countries utilized their assets at a rate exceeding 70 per cent of productive capacity in the mid 1980s.

To help African enterprises overcome weak management, UNDP and IFC launched the **African Training Management Services Project** in April 1989. This project provides companies with technical, financial and administrative support. It has three interrelated elements. **The Management Training and Development Fund,** financed by grants from multilateral and bilateral donors, including UNDP, trains local managers and finances other management-related activities. The **African Management Services Company** (AMSCO) offers financially viable African enterprises access to expertise, financing, joint ventures, technology and foreign markets by mobilizing the international private sector in support of African business. It was set up by UNDP, IFC, the Industry Council for Development and the African Development Bank and has the backing of about 40 transnational corporations. AMSCO assists both private and public enterprises that have a minimum investment of $5 million on a commercial basis. It provides experienced managers from transnational corporations to run companies that lack efficient management, and trains African management teams. Within its first five years, AMSCO aims to take on 50 client companies and train 150 African managers. A **Management Loan Fund** enables companies to obtain loans to pay for AMSCO's services.

Technology Business Incubators nurture new enterprises.

WOMEN IN DEVELOPMENT

It has been 15 years since the World Conference of the International Women's Year, held in Mexico in 1975, opened debate on the status of women and demanded their integration into the economic mainstream. While much has changed for the better in the minds of development planners, the vast majority of African women still work from 14 to 18 hours a day, producing 50 to 80 per cent of sub-Saharan Africa's food, fetching water, gathering fuelwood, and caring for their families. They have not yet obtained equal access to education, training and credit, although they head one third of all African households and must contribute to family income. Their health and nutritional status remain low.

The difference is that policy makers now recognize that equality for women is an economic imperative as well as a social issue, and accept that sustainable development is possible only when women are involved.

UNDP has long been committed to the full participation of women in its activities. In Africa, support over the years has helped women obtain clean water near home, lessen the distance traveled to collect fuelwood, increase the yields of their crops, earn income through small business ventures, and gain basic literacy and education. UNDP also co-operates closely with the UN Development Fund for Women (UNIFEM), which finances projects specifically targeted for women, acting as UNIFEM's representative in the field.

UNDP's Division for Women in Development was created in 1987. Currently it is reviewing all UNDP country programmes in the region to determine the degree to which women are directly involved as participants and beneficiaries. It is also developing baseline data to measure the monetary value of women's contributions to national economies — a step which should confirm that women are in the economic mainstream.

A regional programme, for which UNDP is providing $14.4 million, is undertaking seven projects to raise the productivity of African women. Sectors covered include agriculture, safe drinking water supply, sanitation, energy and the informal sector. There is also an effort to increase women's access to credit and scientific and technical education.

African women work up to 18 hours a day.

Ninety eight per cent of Rwanda's women are farmers.

♦ With the Food and Agriculture Organization of the UN (FAO), UNDP has helped **Nigeria** establish a federal Home Economics Division with headquarters in Abuja and links in five states. It includes a Skills Training Unit to help women boost local production of processed foods and semi-agricultural craft products, using appropriate technologies and local resources.

The food processing operation introduced mills for producing gari, a local staple made from cassava, together with devices for extracting and processing palm oil, milling grain, and smoking fish. These low-cost technologies saved hours of daily labour for 250 women in seven villages.

To support handicrafts production, the project introduced equipment and organized training for the production of tie-dye fabrics, soap and scented oils. This has benefitted over 1,000 women. Training in the formation of co-operatives was introduced at an Agricultural Rural and Management Training Institute in the city of Ilorin, in Kwara State. A learning exchange was established with women from Cameroon through the Pan African Institute for Development. A number of women learned weaving at the Industrial Development Centre at Oshogbo, in the south western Oyo State. Fellowships were arranged for three national project staff to attend an international conference on Home Economics in the United States.

♦ In **Rwanda**, where more than 98 per cent of the women are involved in agriculture, small plots, poor soils and crude tools limit the profits that can come from working the land, leaving women little time for income-earning activities which could raise their standard of living.

Although government support has been provided for more than 500 women's groups, formed after independence in 1962, progress in obtaining better living and working conditions has been constrained by poor organization and management, limited training, and rudimentary production techniques.

UNDP and UNIFEM have been asked to help the groups generate income through agriculture and livestock raising, embroidery, rug-making, leather work, weaving, and other activities. Assistance is initially provided to 20 associations of women involved in market gardening, fish farming, beekeeping, brick making and livestock raising. An analysis is being made of the training and equipment they need to intensify their production. Credit will be extended to enable them to acquire equipment and appropriate technologies.

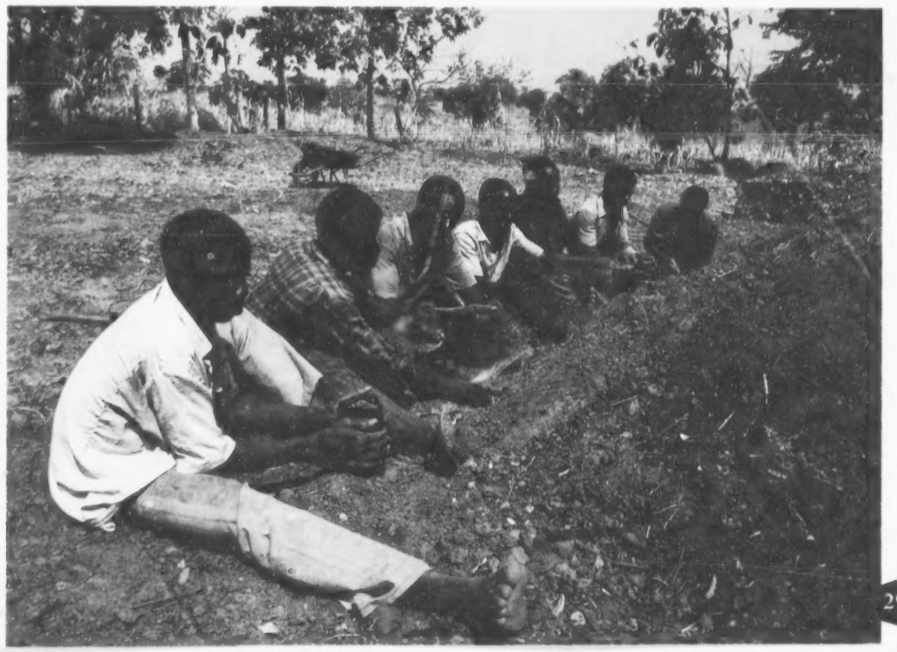
GRASSROOTS INITIATIVES

With the vast majority of Africans living in close-knit communities, grassroots initiatives to mobilize community participation are essential to progress. Decades of experience have shown that when local people choose their own goals and paths external assistance is much more likely to bring lasting benefits.

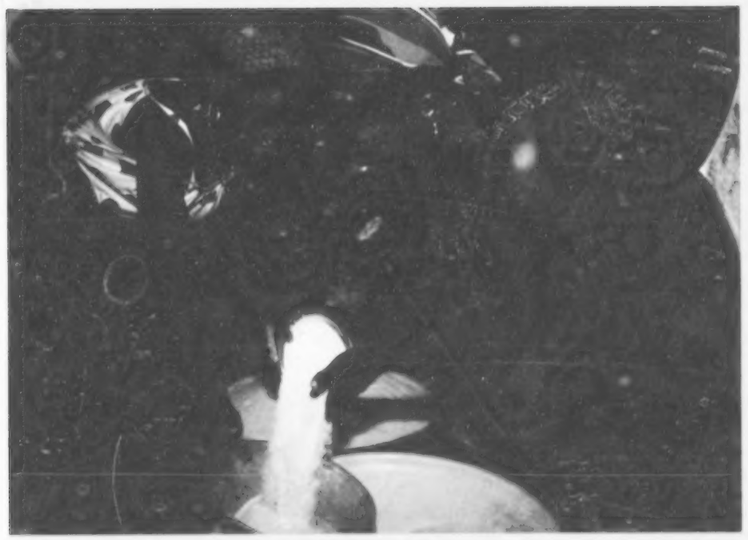
Both governments and UNDP are increasingly drawing upon non-governmental organizations (NGOs) with close community ties to build rapport for sustainable development, and to assist in the implementation of specific activities. UNDP formalized this commitment to grassroots development in 1987 by establishing a Division for Non-Governmental Organizations. It also supports a series of special African initiatives involving NGOs.

♦ **The Sahel Information System (SIS)** will link hundreds of NGOs concerned with the management of natural resources through computerized data bases in **Burkina Faso, Mali, Niger** and **Senegal**. With assistance from UNDP and the Industry Council for Development, 11 other African countries are helping to compile data for the system on the relevant programmes of hundreds of national and international organizations. **Zaire** alone has surveyed the work of 275 national NGOs ready to share experiences on development approaches which have worked, could be improved, or have failed to deliver the intended benefits.

♦ The **Africa 2000 Network** is a $25 million enterprise which will link Africa-based NGOs, technical institutes and other grassroots organizations concerned with the environment and with promoting ecologically sound development. The project is being developed by UNDP's NGO Division with funding from Canada, Denmark, France, Italy, Japan, and Norway. In its initial stages it will link 15 countries.



Reforestation, a concern of many African NGOs.



Supporting Self-help Projects

With 80 per cent of its four million people dependent on subsistence agriculture, Benin has taken good advantage of UNDP's grassroots focus. National development policy leans heavily towards the rural majority and the government insists that assistance projects be unencumbered by administrative and technical components which could inhibit local management and maintenance.

UNDP was asked to set up a support fund for small projects in Mono Province. An amount of $10,000 enabled local communities to enlarge and equip a soap-making plant, dig a well to provide water for a tree nursery, construct a small bridge, introduce manioc processing technology and improve pottery production.

Based on the positive results, funds were provided for more than 125 similar micro-projects, as well as to start up 225 small income-generating activities. By the end of 1989, 73 self-help projects benefitting over 12,000 people had been approved.

♦ Launched in 1988, the **Partners in Development Programme** gives UNDP Resident Representatives the discretion to grant awards totalling $25,000 per country for outstanding NGO activities. Some 50 NGO projects in 15 countries received awards in the first year and their number almost doubled in 1989. In Africa, grants have gone to grassroots organizations in **Benin, Botswana, Burkina Faso, Cameroon, Ghana, Guinea, Malawi, Mali, Mauritania, Rwanda, Togo, Uganda, Zaire, Zambia** and **Zimbabwe**.

Recipients include a community bakery and a dried meat enterprise in Botswana; projects to train the disabled in Malawi; a fishing co-operative in Mali; and a women's self-help project in Burkina Faso.

Other approaches UNDP has used to foster NGO development and co-operation in Africa include provision of grants and loans for community self-help projects, workshops to promote co-operation among African government agencies, UNDP field offices and NGOs, and regional projects to strengthen the managerial capacity of selected NGOs and back loans for local enterprises. UNDP has also supported special Round Table meetings between potential donors and NGOs in **Cape Verde, Guinea-Bissau, Rwanda, São Tomé and Principé** and **Togo.**

PREVENTING AND COPING WITH DISASTERS

For the better part of two decades, Africa has been plagued by a series of natural and man-made disasters. Between 1980 and 1987, 15 nations experienced severe droughts, 12 experienced floods, and five, earthquakes. Cameroon was the victim of toxic gases which arose from within a volcanic lake. Lesotho was hit by a severe snowstorm. A wide band of Sudano-Sahelian countries was subject to recurring Desert Locust attacks.

It is no accident that the poorest areas have been hardest hit by these events. The least developed countries (LDCs), which have per capita incomes of $400 or less, are the least able to cope when disaster strikes. Their food supplies and reserves are low, transportation links poorly developed, and institutions ill prepared to deal with the human demands and dislocations which follow major catastrophes.

UNDP has been on the front line of Africa's emergencies. The main link between disaster-affected countries and the United Nations system is the UNDP Resident Representative, who has the dual role of Resident Co-ordinator for UN Operational Activities for Development and local representative of the United Nations Disaster Relief Organization (UNDRO).

While a significant number of African States have established special units or focal points to deal with emergencies, most are still more involved with disaster response than disaster preparedness. In addition to co-ordinating relief in the aftermath of tragedies, UNDP also works to help nations develop a permanent state of readiness. These efforts are carried out directly with governments, international donors and agencies, as well as through specialized bodies such as UNDRO, the UN Sudano-Sahelian Office (UNSO), the World Food Programme (WFP) and the Office of the UN High Commissioner for Refugees (UNHCR). The main focus is on repair and protection of the natural environment, development of safe water supplies and self-sufficiency in food production and storage, and strengthening nations' capacities to manage crises and respond to the requirements of emergencies.

♦ In **Ethiopia**, which has endured drought, environmental degradation and famine for most of the last 20 years, the national Relief and Rehabilitation Commission, UNDP and other international agencies are developing disaster prevention and preparedness strategies which address the need for early warning systems, strong institutional management, food security, and support for farmers.

Victims of famine, Ethiopia.

Holding Back the Dunes

Seventy five per cent of the large West African nation of **Mauritania** is sand and dry scrubland. Travellers along the Highway of Hope, which links the capital city of Nouakchott with the eastern border with Mali, follow a slender ribbon of tarred road through a seemingly endless desert. Imposing dunes threaten to engulf the road on either side.

But at Boutilimit, 200 kilometres east of the capital, clusters of young trees stand like sentinels, defying the dunes to come any closer. Nearby, windbreaks thatched from palm fronds, dead branches and leaves create another barrier. A once-buried building has been dug out to house an anti-desertification research centre.

Boutilimit is one of 15 sites in Mauritania where a government project supported by UNDP, UNSO, UNCDF and FAO has shown that man can contain the desert. Over a period of three years, more than half a million drought resistant tree saplings have been grown in nurseries and transplanted on 707 hectares of dunes. The trees — fast growing Leptadania pyrotechnica and Balanites aegyptica — have the ability to withstand extreme desert conditions with a minimum of care. They require just one good watering, when planted, after which their roots grow deep enough to tap a layer of moisture 30 centimetres below. Where the sand is too deep for trees to survive, the thatched windbreaks have stabilized another 535 hectares.

Using the successful techniques developed, trees are being planted and windbreaks constructed in other areas, saving the road, grazing lands and entire villages from being completely inundated by sand. Despite these efforts, more assistance is needed, as the windswept desert continues to encroach upon the road, particularly between Nouakchott and Boutilimit.

With some 42 million people currently dependent on less than 16 million hectares of arable land, top priority has been given to the management of soil and water resources. Land clearing, overgrazing, and poor crop management over generations have created barren landscapes in heavily populated highland areas which are vulnerable to erosion. Stripped of their surface vegetation, these highlands are losing close to 2,000 tons of topsoil per square kilometre every year — the equivalent of 60,000 hectares of agricultural land, one metre deep.

In the 1970s the government launched a national soil and water conservation programme covering 35 water catchment areas in seven provinces, turning to UNDP and FAO for technical assistance. A succession of projects since then has helped build a team of soil and water technicians in the Ministry of Agriculture and establish soil conservation works in the most seriously affected parts of the country. Terracing and reforestation have helped bind the soil and boost productivity in land under the management of some 2,000 peasant associations.

UNDP has also taken an active role in mobilizing other external resources and effectively coordinating their use. The project has been supplemented by a large-scale reforestation scheme administered by UNSO.

Battling the Desert Locust

When the rains finally came to Africa in 1985, after a long period of drought, an age-old enemy came with them: the Desert Locust. This voracious pest, a major destroyer of crops since biblical times, thrives on moisture in the soil. It travels in swarms measuring up to 1,000 kilometres square, devouring every green plant in its path.

As the pest spread from its desert habitats in the Sudano-Sahelian zone, UNDP and FAO stepped up vigilance to pinpoint infestations and helped to mobilize resources for counter attack. Many affected and threatened nations organized aerial and ground spraying programmes, currently the only effective control measures.

Since the early 1960s, UNDP has provided $38.3 million to fight the desert locust worldwide. The funds have been used to establish a surveillance and forecasting system, strengthen national plant protection services, test pesticides and techniques for delivering them, and provide spraying and communication equipment. Recently UNDP launched a research programme to study long-term measures for controlling the insect, including biological curbs.

REFUGEES AND DISPLACED PERSONS

Africa's natural disasters and armed conflicts have broken the rhythm of production, cut populations adrift and created a refugee phenomenon of extraordinary magnitude and complexity. Millions of African men, women, and children are running from civil strife, drought, hunger, and sometimes all three. The vast majority are only marginally better off in their places of resettlement. While their host communities willingly share what they have, the presence of newcomers often strains resources to the breaking point. As the competition for land, food, water, fuel and services increases, malnutrition, disease and joblessness become the norm.

The LDCs in Africa have the most severe refugee problems. Eight of the ten African nations which have produced the largest number of refugees are LDCs, as are all the main countries of asylum.

Many of these countries also have problems of displaced persons — people who have fled their homes but not crossed national boundaries. They suffer the same sense of loss and deprivation as those who seek refuge across a border but do not officially qualify for assistance through the United Nations High Commissioner for Refugees (UNHCR).

UNDP, UNHCR, and others attempting to cope with the problems of refugees and displaced persons have recognized that emergency measures are not enough. In fact, short-term relief can even become destructive when it renders newcomers better off than their neighbours and breeds community resentment. Along with relief, development-oriented programmes are required to transform uprooted people from economic liabilities to productive assets in their new surroundings. Such programmes enable displaced or refugee populations and their host communities to work together in identifying problems and carrying out solutions.

A series of international conferences on refugees, ICARA I (1981), ICARA II (1984) and SARRED (1981), have generated a consensus that refugee programmes need to be harmonized with national development strategies. These conferences have designated UNDP to co-ordinate all technical and financial assistance aimed at strengthening the social and economic infrastructure of countries affected by an influx of refugees or returnees. In so doing, it helps governments cope with the destructive elements of displacement by linking refugee with development activities. Close collaboration is maintained with UNHCR, UNICEF and WFP in mobilizing resources and formulating projects and programmes.

In October of 1984, the UNDP Administrator established a Trust Fund for assistance to refugee-related development projects in Africa. More than $9 million has been raised so far, and 26 projects for 15 countries have been established.

Displaced persons, Mozambique.

♦ One of these is in **Malawi,** where turmoil in neighbouring Mozambique has brought more than 630,000 refugees across the border. Arriving Mozambicans have almost no clothing and require shelter and 113,000 metric tons of food a year. They also need drinking water, health care, fuel, schools, land to farm, and jobs. However, Malawi is hard pressed to meet its own people's demands for these basics, even in the best of times. In the district of Nasnje, where 250,000 Mozambicans settled, there were already 150,000 underemployed Malawians.

Though UNDP and UNHCR assisted in raising emergency funds through international appeals, living standards of the host communities declined and undue pressure was placed on the natural environment. National consumption of wood for fuel and shelter jumped by 160,000 metric tons a year, further depleting the nation's precious forests.

A 1987 mission by UNDP, UNHCR and the government suggested that large-scale public works programmes employing both locals and newcomers could create infrastructure to cope with the immediate requirements of the refugees and serve the needs of Malawians long after they had returned to their real homes. A large irrigation project is being planned for the Lower Shire Valley, which has suffered food deficits for 50 years. A land reclamation and aquaculture project is proposed for the Ndindi Marsh, a major contributor to water-borne diseases. Reforestation projects are in the pipeline, the national road system has been targeted for improvement and schools, clinics, and food storage facilities are to be built.

Meanwhile, the cost of providing food, water and basic services to displaced populations, estimated at $45 million in 1989, is being integrated into Malawi's long-term national development plan.

♦ In **Angola**, a 14-year civil war has seriously handicapped development. But in spite of the turmoil, UNDP has supported a reconstruction programme for the country's three southern provinces — Huila, Namibe and Cunene. A consulting firm has proposed a five-year plan comprised of 114 projects and costing $205 million. A number of donors have made preliminary commitments of support for this package, both to the government and through UNDP.

A revised regional investment programme, linked to a new national policy of decentralization, covers 85 more projects, including the rehabilitation of the port of Namibe, roadworks, and the Namibe railroad. The estimated cost is $512 million.

In the province of Uige, UNDP has launched a four-year, $3.1 million project to support agricultural extension workers and strengthen local production and marketing associations. Its aim is to help reintegrate Angolans into mainstream society.

Rebuilding A Life

War and civil strife have gutted the economy and wreaked havoc with daily life in Mozambique. Its people have been chased from their towns and villages by brutal forces which have also bombed, burned, looted, or mined much of the vital infrastructure urgently required for reconstruction and development. An estimated 5.9 million Mozambicans — 40 per cent of the population — have been directly affected by the war. Drought, floods and natural calamities have likewise taken their toll. Millions of Mozambicans are displaced within their own country or dependent upon shelters in neighbouring Malawi, Zambia or Zimbabwe.

One family's story is fairly typical. After fleeing rebels who attacked their small farm 1,000 kilometres north of Maputo, the capital, a couple and their four children roamed Zambezia Province, always hungry and never far from the threat of new attacks. Two of the children died from infections and malnutrition.

When word of a UNDP-assisted project in their former community reached the couple, they decided to return home to rebuild their lives. They found their fields overgrown and most of the community's housing destroyed. But they also found neighbours re-roofing the burned out school and hospital and farmers tilling the soil. They decided to stay, accepting the government's offer of farm tools and seeds. Authorities also organized a food distribution system and transportation, with technical assistance provided by UNDP and other UN agencies. Though it has not been easy, they are determined to persevere and to build a better life for the future.

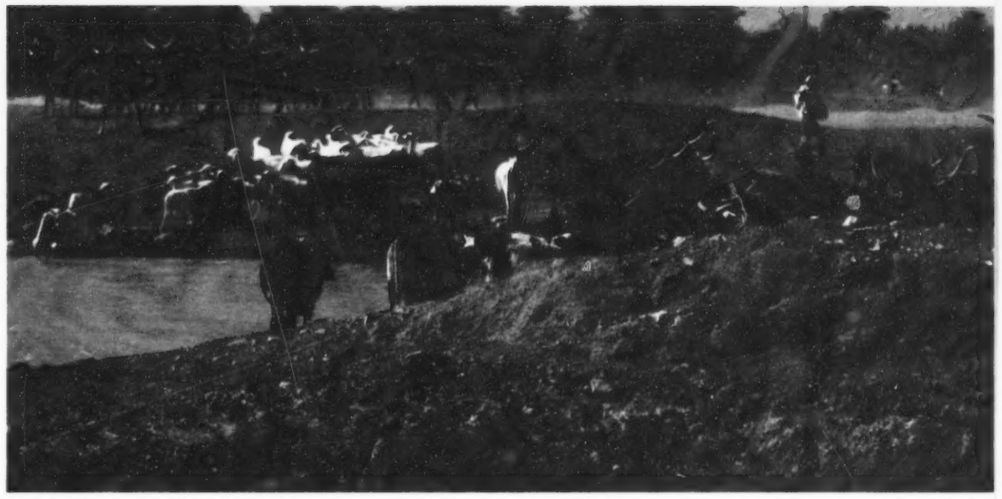
MANAGING THE ENVIRONMENT

Recurring drought, the rapid growth of human and livestock populations, and urbanization have placed increasingly visible strains on the African environment.

Demands for fuel, building materials, and new cropland have seriously depleted the forest and vegetation cover of most nations in the region. Precious topsoils are prey to intense erosion. Overgrazing by livestock is turning rangelands into dust bowls. An influx of job seekers and immigrants has given rise to unplanned, overcrowded urban slums.

♦ UNDP-assisted projects are tackling the deterioration of the environment in both rural and urban areas. In the West African coastal state of **Sierra Leone**, fuelwood is the main source of energy for 85 per cent of the 3.6 million people. They have cut and gathered it at will from rich tropical rain forest and mangrove wood reserves near the capital city of Freetown and along the Sierra Leone river delta.

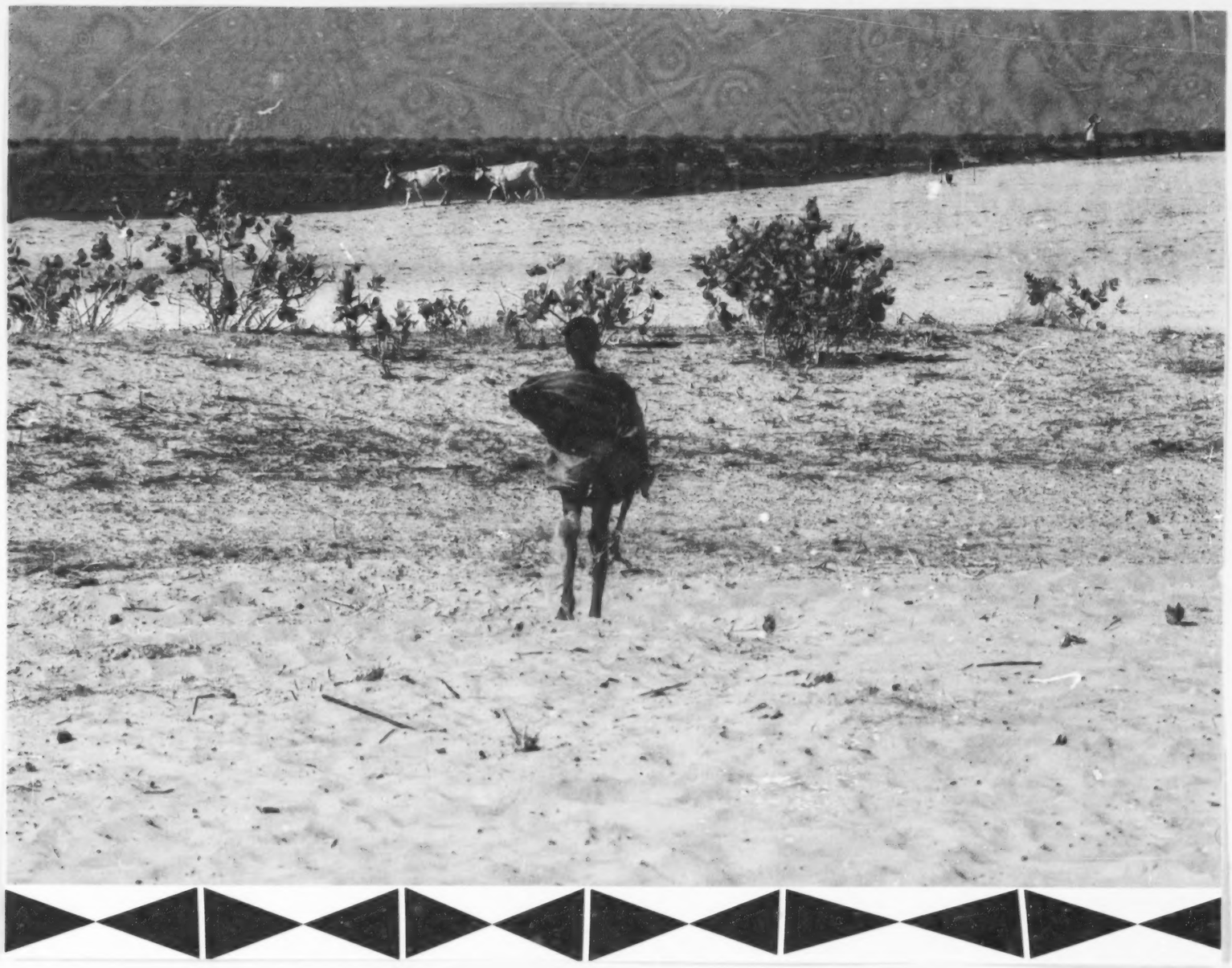
But people have begun to discover that precious tropical forests have disappeared and that the continued loss of mangroves, which provide natural flood control and breeding grounds for fish and shrimp, now threatens coastal settlements as well as the food supply.



Overgrazing turns range lands into dust bowls.

The half a million people inhabiting Freetown and the rural western area burn 395,000 cubic metres of wood and 4,270 tons of charcoal yearly, according to a 1986 survey. Demand is expected to double by the year 2000, and a vicious cycle is already evident. Shortages have caused fuelwood prices to rise, and communities have responded by cutting protective vegetation on farm land, or from old forests which are already damaged and struggling to grow back.

To counter the problem, the government has begun to reforest damaged areas and arrest coastal erosion. UNDP and FAO are helping to train Forest Division personnel to regulate timber cutting, take inventory of remaining reserves, and replant over-exploited mangroves. Endangered areas are being mapped and classified. NGOs and school children have planted more than 75,000 mangrove seedlings in depleted areas, and two million fast-growing exotic trees are being planted between 1988 and 1990. Women are already involved in developing oyster cultivation in the reclaimed mangrove areas.



♦ With only 6.5 per cent of its five million people living in towns or cities, **Burundi** is ranked as one of the world's least urbanized countries. However, with 189 people per square kilometre, it is also one of the world's most crowded nations. Pressure on the land has brought 6,000 settlers a year to the capital city of Bujumbura, and a good number of them ended up in the sprawling slum settlement of Musaga. By 1978 Musaga's population had swollen to 8,500 people, none of whom had safe drinking water or sanitation facilities.

Working with the UN Centre for Human Settlements (UNCHS/HABITAT) and UNCDF, UNDP has been helping the government make Musaga a fit place to live. The project supported the installation of drainage systems, a piped water supply, public lighting and an internal road network. Construction was completed on a community centre, a primary school and two multi-purpose buildings, a health centre financed by the Netherlands, and a facility for artisans financed by the European Development Fund. A site for 104 low-cost houses was prepared and a co-operative was formed to build them. A revolving fund offered credit to potential home builders. Construction permits control housing standards and residents accept modest taxes to recover expenses for new infrastructure. Ninety per cent of the people who borrowed money to put a roof over their heads have met their repayment obligations.

New homes replace slums in Bujumbura.

A follow-up venture supported by UNDP and the Swiss Government has provided water, sanitation, electricity and roads for an additional 43 hectares of land, as well as 829 more houses. A fund finances accommodation for low-income families. A team of local professionals manages similar urbanisation programmes in Bujumbura and secondary towns in the interior.

♦ Among the numerous projects UNDP has supported to provide Africans with clean drinking water and adequate sanitation, a project in **Ghana** has had especially good results. It has targeted the needs of some 80,000 inhabitants in the Central and Volta provinces. A pilot effort arranged workshops and seminars to train village technicians, who then rehabilitated 17 piped water supply systems, constructed 21 wells and began to construct latrines. A water and sanitation conference in Accra drew pledges of $90 million to extend the work to other provinces, and to support a human waste management pilot project for the city of Kumasi.

FOOD SECURITY

The people of sub-Saharan Africa have a lower nutritional intake today than they had 20 years ago. While mankind's capacity to grow food has risen dramatically since the 1960s, food production in most African nations has been falling, and has failed to keep pace with rapid population growth. The continent's agricultural constraints are well known. They include low average (and extremes in seasonal) rainfall, fragile soils, destructive crop pests, outmoded farming techniques, lack of research capacity, pricing policies favouring cash crops over staples, and the inability of poor farmers to obtain improved seeds and fertilizers. These handicaps have been aggravated by human mismanagement of the environment, especially the widespread practice of grazing oversized herds of livestock on marginal rangeland, the depletion of forested areas for fuelwood, and "slash and burn" practises which further deplete poor soils. All contribute to desertification and declining agricultural productivity.

Commercial imports of grain to Africa have risen at an average rate of nine per cent a year for 20 years. Excluding emergency shipments, 10 million tons of cereals are offloaded in African ports even in a normal year.

However, Africa does have the potential to produce more than enough food to feed its people. UNDP invests nearly 25 per cent of its resources for the region to help countries realize this promise. It supports an array of initiatives to protect and restore the fertility of soil, develop new varieties of crops able to withstand harsh growing conditions, control plant diseases and insect pests, introduce new marketing, storage and distribution systems, and adapt "Green Revolution" technologies to African conditions.

One especially fruitful venture for Africa has been UNDP's sponsorship, with FAO and the World Bank, of the Consultative Group on International Agricultural Research (CGIAR) — a global network of 13 research and training centres devoted to the fight against hunger. Four of those centres are located in Africa, applying state of the art technologies and knowledge to special problems: the International Institute of Tropical Agriculture (IITA) in Nigeria, the International Livestock Centre for Africa (ILCA) in Ethiopia, the International Laboratory for Research on Animal Diseases (ILRAD) in Kenya, and the West Africa Rice Development Association (WARDA) in Côte d'Ivoire. A fifth, the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), with its headquarters in India, has a Sahelian Centre in Niger as well as research stations in several other African countries.

Another research centre, which is not a member of the CGIAR but which has had UNDP's backing in its fight against insect pests threatening the region's food crops and livestock, is the Nairobi-based International Centre for Insect Physiology and Ecology (ICIPE). The International Trypano-tolerance Centre in the Gambia, which carries out applied research to develop livestock resistant to lethal trypanosomiasis, caused by the tsetse fly, also receives UNDP assistance.

ICRISAT concentrates on sorghum and pearl millet, which are staple foods for the majority of people in Africa's vast Sudano-Sahelian region. It also conducts research on the most important food legumes of the semi-arid tropics — chick-

Agricultural research station, Kenya.

pea, pigeon pea and groundnut. Its mandate is to improve the yield, stability and quality of these five crops, and to develop farming systems that maximize the use of the region's rainfall and human and animal resources. UNDP provides specific assistance for the sorghum and millet improvement programmes, as well as for ICRISAT's African Co-operative Programme.

Millet is the most important cereal of the Sahel, where it has been grown for more than 7,000 years. Researchers at ICRISAT's centre in Niger have been developing high-yielding varieties which are resistant to plant pests and diseases, grow well under high temperatures and withstand drought. At the height of the most recent severe African drought in the mid 1980s ICRISAT cultivars were yielding four to five times as much grain as varieties used by traditional farmers. Through a network of collaborative researchers, ICRISAT is continuing to develop improved millet varieties adapted to specific local conditions, and to provide them to national agricultural programmes which can get them out to farmers.

National Production and Storage

♦ Increasing yields of another African staple crop, maize, is the subject of a research project in **Zambia**. Working with the FAO, UNDP is helping the government's maize commodity research team develop technological packages for maize breeding and plant protection, and train researchers and small farmers. A variety of production packages have been tested in low, medium, and high rainfall regions, and the gains have been spectacular. The use of one improved maize hybrid has lifted yields by 111 per cent, from 1.2 tons to 2.5 tons per hectare. Under scientifically planned growing conditions, yields of 8.1 tons per hectare are expected to be possible.

♦ With a population of more than 20 million, likely to double within two decades, **Kenya** is increasingly concerned about the capacity of its agricultural sector to keep pace with the demand for food. The current population growth rate, approaching four per cent yearly, is one of the highest in Africa.

Kenya's fabled wildlife reserves and open rangelands are already showing the stress of feeding the increasing numbers of people. Farmers have been encroaching on pastures usually reserved for livestock, causing herds of cows, sheep and goats to be pushed farther afield into ecologically fragile drylands. High quality forage has been in short supply during dry seasons. Milk and meat production have suffered, lowering farmers's incomes.

To meet the growing demand for meat and milk, the government asked UNDP and FAO to help bring improved fodder and pasture crops to smallholders in the coastal and semi-arid zones. The project set up a gene bank to develop higher-yielding varieties of fodder and distributed the improved seeds among farmers. Some 62 demonstration plots were planted at schools, students and their families were trained in pasture development, and three major seed multiplication centres were established.

Sorghum is a Sahelian staple food.

Controlling the Mighty Mealybug

One of the most successful battles against insect pests has been waged on a tiny South American invader, the cassava mealybug. This pest first appeared in Zaire in 1973 after hitching a ride across the Atlantic on plant clippings. Since then it has infested cassava plants in 31 countries, from Malawi to Senegal.

Portuguese traders introduced cassava to Africa from South America in the latter part of the 16th century. It has become one of the continent's most important crops since it grows under harsh climatic conditions. Moreover, its edible tubers can be left in the ground for up to two years and relied on for consumption when other crops fail.

The mealybug feeds on sap in the leaves of the cassava plant, stunting its growth and reducing yields by as much as 80 per cent. Its arrival signalled a calamity for Africa, where 200 million people in 35 countries rely on cassava for more than half their food calories.

The attack against the mealybug was launched by the Africa-wide Biological Control Programme (ABCP) based at IITA's headquarters in Ibadan, Nigeria. As biological control methods avoid the use of costly and environmentally harmful pesticides, the first step was to hunt for the pest's parent species and natural enemies in Latin America. Members of the African mealybug's family were discovered in Paraguay and flown to London for closer examination. While there, a number of the bugs suddenly died, and a natural enemy, a tiny parasitic wasp, emerged from the dead bugs' shells.

Once extensive testing had determined that wasp larvae had a taste only for the blood of the cassava mealybug, IITA, backed by UNDP and FAO, mounted an extensive eradication programme for 36

African countries. Millions of wasps were bred at IITA and ABCP's research centre in Cotonou, Benin and dispersed by aircraft over cassava-growing areas throughout the continent. Once on the ground, the wasps spread from field to field, rapidly reducing the mealybug population. Since the first flights were launched in 1981, the effort has become the world's largest biological pest control programme.

Early results are encouraging. Some 10,000 farmers who have sown the new varieties have increased their milk production by more than 70 per cent since 1985.

♦ **Botswana**, a large land-locked nation which embraces much of the Kalahari Desert, is a victim of both its climate and its long southern border with South Africa. Persistent drought has reduced domestic cereal production to just 10 per cent of annual consumption. Total imports, via transportation routes and facilities controlled by South Africa, rose from 80,000 tons in 1981 to 190,000 tons in 1986.

Until recently Botswana's only hedge against a failed harvest was a 6,000 metric ton grain reserve established by the World Food Programme in 1980. The reserve was sufficient to cover the country's consumption needs for one month, but it takes at least three to four months for replacement supplies to reach the capital city of Gaborone after they are ordered.

In 1986 the government asked UNDP and UNCDF to help in establishing a grain reserve of 80,000 metric tons of sorghum and maize. It was estimated that a reserve of this size could carry the population for five months in an emergency, and that it would help the Botswana Agricultural Marketing Board stabilize prices and provide incentives for increased domestic production.

In less than three years the project helped to raise Botswana's grain storage capacity from 48,000 metric tons to 134,000 metric tons at 15 strategic centres. In mid 1989 the strategic grain reserve for emergency consumption was almost 65,000 metric tons. Nationals were being trained to manage the storage facilities.

♦ There are few reliable statistics on the amount of food wasted en route from fields to consumer, but FAO has recorded food grain losses equal to 35 per cent of the harvest in parts of Africa. One project of vital importance to **Côte d'Ivoire** has brought UNDP experts and equipment to bear on extraordinary post harvest losses of two of the country's main food staples, yams and plantains.

A 1984 survey found that 40 per cent of the nation's plantain production, valued at almost $121 million, was wasted. Of the 1.1 million tons harvested, only 660,000 tons were consumed locally and none was exported. Similarly, only 1.5 million of the 2.2 million ton yam harvest was consumed, and no yams were exported — a loss of 30 per cent of the production, valued at more than $241 million.

A UNDP-assisted project is currently helping the government improve the handling, packing, transportation, and storage of both crops and open marketing opportunities for growers. A team of international and national consultants is examining harvesting techniques while research institutes are testing improved storage methods in six communities. Technicians and farmers are sharing in the lessons learned through training.

Fish farming, Côte d'Ivoire.

Protein-producing Ponds

In spite of Africa's need for protein, relatively little has been done to exploit fish production. The seas surrounding the continent are bountiful, but many coastal states have neither the capital nor the managerial capacity to increase their proportion of the catch. The vast majority of these resources are being exploited by developed countries, which show no concern for replenishing or managing them.

Inland waters produced 1.5 million metric tons of fish in 1987, of which fish farming was responsible for only 120,000 metric tons. Several nations, including **Central African Republic, Côte d'Ivoire, Kenya, Madagascar, Malawi** and **Zambia** have developed ponds for small scale subsistence fish farming. **Côte d'Ivoire, Kenya, Lesotho, Malawi, Nigeria, Zambia** and **Zimbabwe** have directed their attention to semi-intensive commercial production.

♦ An aquaculture project UNDP has assisted in **Côte d'Ivoire** since 1978 is indicative of the possibilities — particularly among poor inland farmers. Early phases developed more than 2,300 small ponds over 65 per cent of the country. More than 1,200 farmers were trained in basic fish culture techniques and three million fish fingerlings were hatched and distributed. Tilapia and catfish proved most popular.

Fish farming has been most successful in remote parts of the savannah and forest zones, where ponds have provided more cash income than rice and other crops. Although the price of cultured fish has been higher, demand for it has been greater than that for imported frozen or smoked products.

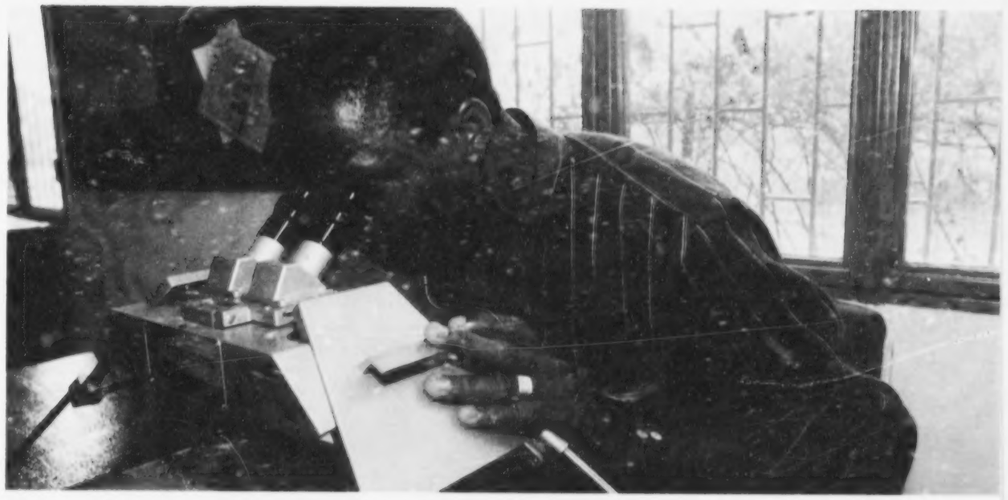
UNDP has helped set up the National Inland Fisheries Co-ordination Unit which has launched activities around the country. One project is training women and commercial producers. With adequate support, fish farmers can expect to produce close to 1.5 tons of fish a year for every hectare of pond under cultivation.

SCIENCE AND TECHNOLOGY TRANSFER

Too many technologies have failed to take root in Africa, or to achieve their intended purposes. Many devices introduced have been ill-suited to the environments in which they were placed. Local people have often been insufficiently trained to use and maintain them.

Part of the problem has been the lack of access to scientific education and technological training for Africans. UNDP is working to reverse this trend by supporting technology transfers which emphasize training and long-term sustainability, and by funding fundamental science education.

♦ Through the UN Educational, Scientific and Cultural Organization, UNDP is helping **Zambia** advance its scientific and technological capabilities. Severe economic depression has meant a lack of foreign exchange for school science equipment and textbooks. Laboratories have become obsolete, and there are not enough teachers for science and mathematics.



Technology used for mapping, Burkina Faso.

Since 1987, the project has been working to establish a national centre for the production of low-cost science teaching materials as well as satellite centres and mobile workshops to repair existing laboratory equipment. It is also holding training workshops to upgrade the skills of 1,000 teachers of science and mathematics. Several Zambians have received fellowships to study science education in Kenya and Thailand, both of which have grappled with similar problems.

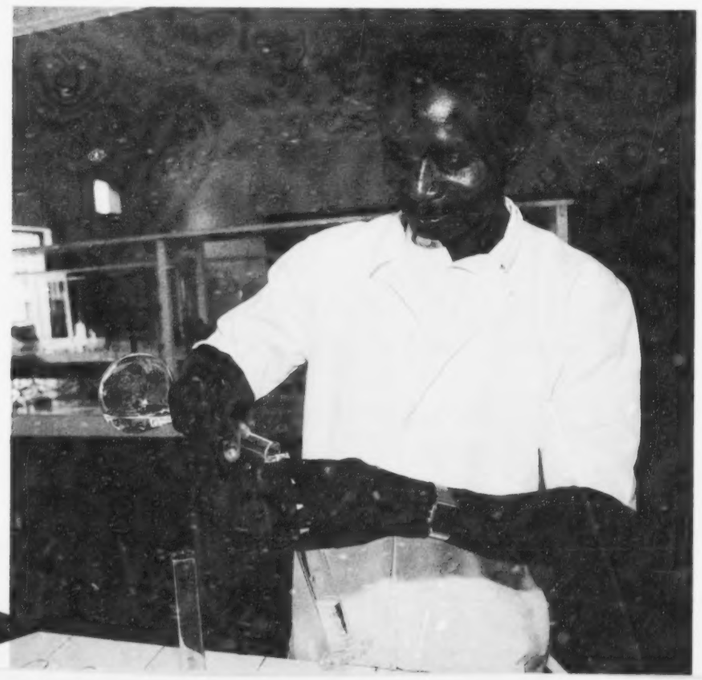
♦ In **Tanzania, Nigeria, Senegal,** and **Sierra Leone**, for example, national consultants in the fields of agriculture, food technology, agro-industry, energy, transportation and communications are involved in a venture to develop cost-effective technology transfers in Africa.

Working through UNDP and the UN Fund for Science and Technology for Development (UNFSTD), consulting firms from each of these countries have formed a consortium with companies from the United Kingdom, the Netherlands and Italy to deliver hi-tech services tailored to African conditions. This **International Consulting Consortium for Africa (ICCA)** is expected to enable African firms to participate in projects previously beyond their reach, while giving foreign-based companies local, culturally sensitive expertise, without which many technologically feasible projects risk failure. The programme will help reduce the cost of consultancy services, which currently consume more than $1,000 million a year in foreign exchange.

UNFSTD is also involved in an innovative South-South communications project which shares up-to-the-minute information on the latest technologies and trade opportunities available in the developing world. A network of 10 developing countries — including **Kenya** and **Zimbabwe** — links businesses, trade and professional associations, universities and government decision-makers in Asia, Latin America, and Africa through a computer exchange in Rome.

Subscribers receive trade and technical data, including information on the latest prices and availability of equipment which has been manufactured and applied successfully in Third World environments.

Computers supply trade and technical data.



Agricultural technology laboratory.

Designing a Handpump

A classic example of a suitable technology for Africa, and developing countries beyond the region, is found in Kenya, where the rugged Afridev handpump is transforming village water supply.

Within its utilitarian steel casing the Afridev has an extraordinarily efficient "heart" of high-tech plastic parts. Polymer bearings, footvalves and plungers have replaced the imported metal parts which create serious maintenance problems for most other pumps in Africa. And everything is manufactured locally, at low cost.

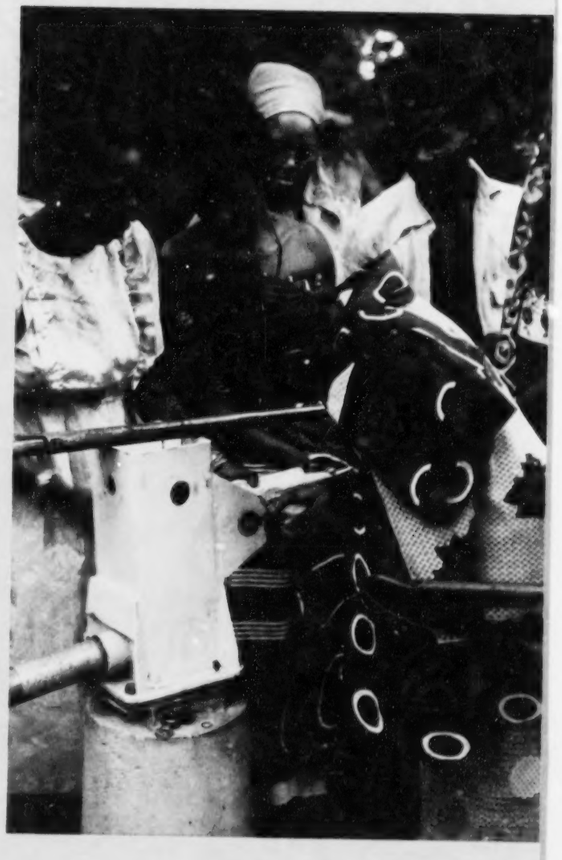
The Afridev is the by-product of an international community water supply project that UNDP and the World Bank supported between 1981 and 1987. Both organizations had been troubled by the proliferation of foreign handpumps donors gave to small communities with little thought as to who would take care of them when they broke down. Villages throughout Africa received an amazing variety of "gift" pumps, many of them quite complex, and all too often abandoned for want of spare parts or technicians trained to repair them.

The main objective of the UNDP and World Bank project was to test the many types of handpumps available in developing countries and produce a "buyers guide" which would rate their utility within different socio-economic environments. They tested 2,700 handpumps, supplied by 70 manufacturers in 17 countries.

At the outset however, programme officials suspected that none of the pumps in circulation would meet all of Africa's requirements. Experience suggested that for a pump to be "sustainable" in rural areas, it would have to be durable, efficient, reasonably priced, and easily maintained in remote villages.

Deciding that a new pump needed to be designed, project officials assembled a team of African technicians and called in an engineer from the Dupont company to help fashion its plastic parts. Each step of the design process considered the pump's users and their remoteness from towns and services. After extensive testing, the Afridev became a model technology for rural areas. Village women were trained to strip, service, and reassemble the pump in about half an hour using only a wrench.

The Afridev costs about $500, including spare parts. It can pump enough water to meet the daily needs of about 250 people. Several companies now manufacture it in Kenya, and Malawi expects to achieve full production by 1991. Modified versions are being built in Ethiopia, Nigeria, and as far afield as India and China.



Produced by UNDP, Division of Information.
May, 1990

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